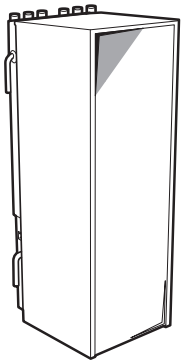
Installation manual

Daikin Altherma ground source heat pump



EGSQH10S18AA9W

Installation manual
Daikin Altherma ground source heat pump

English

CE - DECLARATION-OF-CONFORMITY
CE - KONFORMITÄTSERKLÄRUNG
CE - DECLARATION-DE-CONFORMITE
CE - CONFORMITEITSVERKLARING

CE - DECLARACION-DE-CONFORMIDAD
CE - DICHIARAZIONE-DI-CONFORMITA
CE - ΔΗΛΩΣΗ ΣΥΜΜΟΡΦΩΣΗΣ

CE - DECLARAÇÃO-DE-CONFORMIDADE
CE - ЗАЯВЛЕНИЕ-О-СООТВЕТСТВИИ
CE - OVERENSSTEMMELSESERKLÆRING
CE - FÖRSÄKRAN-OM-ÖVERENSTÄMMELSE

CE - ERKLÆRING OM-SAMSVAR
CE - ILMOITUS-YHDENMUKAISUUDESTA
CE - PROHLÁŠENÍ-O-SHODĚ

CE - IZJAVA-O-USKLAĐENOSTI
CE - MEGFELELŐSÉGI-NYILATKOZAT
CE - DEKLARACJA-ZGODNOŚCI
CE - DECLARAŢIE-DE-CONFORMITATE

CE - IZJAVA O SKLADNOSTI
CE - VASTAVUSDEKLARATSIOON
CE - ДЕКЛАРАЦИЯ-ЗА-СЪОТВЕТСТВИЕ

CE - ATITIKTIES-DEKLARACIJA
CE - ATBILSTĪBAS-DEKLARĀCIJA
CE - VYHLÁSENIE-ZHODY
CE - UYGUNLUK-BEYANI

Daikin Europe N.V.

01 (GB) declares under its sole responsibility that the equipment to which this declaration relates:
02 (D) erklärt auf seine alleinige Verantwortung daß die Ausrüstung für die diese Erklärung bestimmt ist:
03 (F) déclare sous sa seule responsabilité que l'équipement visé par la présente déclaration:
04 (NL) verklaart hierbij op eigen exclusieve verantwoordelijkheid dat de apparatuur waarop deze verklaring betrekking heeft:
05 (E) declara bajo su única responsabilidad que el equipo al que hace referencia la declaración:
06 (I) dichiara sotto la propria responsabilità che gli apparecchi a cui è riferita questa dichiarazione:
07 (GR) δηλώνει με αποκλειστική της ευθύνη ότι ο εξοπλισμός στον οποίο αναφέρεται η παρούσα δήλωση:
08 (P) declara sob sua exclusiva responsabilidade que os equipamentos a que esta declaração se refere:
09 (RUS) заявляет, исключительно под свою ответственность, что оборудование, к которому относится настоящее заявление:
10 (DK) erklærer under eneansvarlig, at udstyret, som er omfattet af denne erklæring:
11 (S) deklarerar i egenskap av huvudansvarig, att utrustningen som berörs av denna deklaration innebär att:
12 (N) erklærer et fullstendig ansvar for at det utstyr som berøres av denne deklarasjon innebærer at:
13 (FIN) ilmoittaa yksinomaan omalla vastuullaan, että tämän ilmoituksen tarkoittamat laitteet:
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15 (HR) izjavljuje pod isključivo vlastitom odgovornošću da oprema na koju se ova izjava odnosi:
16 (H) teljes felelősségе tudatában kijelenti, hogy a berendezések, melyekre e nyilatkozat vonatkozik:
17 (PL) deklaruje na własną i wyłączną odpowiedzialność, że urządzenia, których ta deklaracja dotyczy:
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20 (EST) kinnitab oma täielikul vastutusel, et käesoleva deklaratsiooni alla kuuluv varustus:
21 (BG) декларира на своя отговорност, че оборудването, за което се отнася тази декларация:
22 (LT) visiška savo atsakomybe skelbia, kad įranga, kuriai taikoma ši deklaracija:
23 (LV) ar pilnu atbildību apliecina, ka tālāk aprakstītās iekārtas, uz kurām attiecas šī deklarācija:
24 (SK) vyhlasuje na vlastnú zodpovednosť, že zariadenie, na ktoré sa vzťahuje toto vyhlásenie:
25 (TR) tamamen kendi sorumluluğunda olmak üzere bu bildirinin ilgili olduğu donanımın aşağıdaki gibi olduğunu beyan eder:

EGSQH10S18AA9W,

01 are in conformity with the following standard(s) or other normative document(s), provided that these are used in accordance with our instructions:
02 der/den folgenden Norm(en) oder einem anderen Normdokument oder -dokumenten entspricht/entsprechen, unter der Voraussetzung, daß sie gemäß unseren Anweisungen eingesetzt werden:
03 sont conformes à la/aux norme(s) ou autre(s) document(s) normatif(s), pour autant qu'ils soient utilisés conformément à nos instructions:
04 conform de volgende norm(en) of één of meer andere bindende documenten zijn, op voorwaarde dat ze worden gebruikt overeenkomstig onze instructies:
05 están en conformidad con la(s) siguiente(s) norma(s) u otro(s) documento(s) normativo(s), siempre que sean utilizados de acuerdo con nuestras instrucciones:
06 sono conformi al(i) seguente(i) standard(s) o altro(i) documento(i) a carattere normativo, a patto che vengano usati in conformità alle nostre istruzioni:
07 είναι σύμφωνα με το(α) ακόλουθο(α) πρότυπο(α) ή άλλο έγγραφο(α) κανονισμών, υπό την προϋπόθεση ότι χρησιμοποιούνται σύμφωνα με τις οδηγίες μας:
08 estão em conformidade com a(s) seguinte(s) norma(s) ou outro(s) documento(s) normativo(s), desde que estes sejam utilizados de acordo com as nossas instruções:
09 соответствуют следующим стандартам или другим нормативным документам, при условии их использования согласно нашим инструкциям:
10 overholder følgende standard(er) eller andet/andre retningsgivende dokument(er), forudsat at disse anvendes i henhold til vore instrukser:
11 respektive utrustning är utförd i överensstämmelse med och följer följande standard(er) eller andra normgivande dokument, under förutsättning att användning sker i överensstämmelse med våra instruktioner:
12 respektive utstyr er i overensstemmelse med følgende standard(er) eller andre normgivende dokument(er), under forutssetning av at disse brukes i henhold til våre instrukser:
13 vastaavat seuraavien standardien ja muiden ohjeellisten dokumenttien vaatimuksia edellyttäen, että niitä käytetään ohjeidemme mukaisesti:
14 za předpokladu, že jsou využívány v souladu s našimi pokyny, odpovídají následujícím normám nebo normativním dokumentům:
15 u skladu sa slijedećim standardom(ima) ili drugim normativnim dokumentom(ima), uz uvjet da se oni koriste u skladu s našim uputama:
16 megfelelnek az alábbi szabvány(ok)nak vagy egyéb irányadó dokumentum(ok)nak, ha azokat előírás szerint használják:
17 spełniają wymogi następujących norm i innych dokumentów normalizacyjnych, pod warunkiem że używane są zgodnie z naszymi instrukcjami:
18 sunt în conformitate cu următorul (următoarele) standard(e) sau alt(e) document(e) normativ(e), cu condiţia ca acestea să fie utilizate în conformitate cu instrucţiunile noastre:
19 skladni z naslednjimi standardi in drugimi normativi, pod pogojem, da se uporabljajo v skladu z našimi navodili:
20 on vastavuses järgmis(t)e standardi(te)ga või teiste normatiivsete dokumentidega, kui neid kasutatakse vastavalt meie juhenditele:
21 съответстват на следните стандарти или други нормативни документи, при условие, че се използват съгласно нашите инструкции:
22 atitinka žemiau nurodytus standartus ir (arba) kitus norminius dokumentus su sąlyga, kad yra naudojami pagal mūsų nurodymus:
23 tad, ja lietoti atbilstoši ražotāja norādījumiem, atbilst sekojošiem standartiem un citiem normatīviem dokumentiem:
24 sú v zhode s nasledovnou(ými) normou(ami) alebo iným(i) normatívnym(i) dokumentom(ami), za predpokladu, že sa používajú v súlade s našim návodom:
25 ürünün, talimatlarımıza göre kullanılması koşuluyla aşağıdaki standartlar ve norm belirten belgelerle uyumludur:

EN60335-2-40,

01 following the provisions of:
02 gemäß den Vorschriften der:
03 conformément aux stipulations des:
04 overeenkomstig de bepalingen van:
05 siguiendo las disposiciones de:
06 secondo le prescrizioni per:
07 με τήρηση των διατάξεων των:
08 de acordo com o previsto em:
09 в соответствии с положениями:
10 under iagttagelse af bestemmelserne i:
11 enligt villkoren i:
12 gitt i henhold til bestemmelsene i:
13 noudattaen määräyksiä:
14 za dodržení ustanovení předpisu:
15 prema odredbama:
16 követi a(z):
17 zgodnie z postanowieniami Dyrektyw:
18 în urma prevederilor:
19 ob upoštevanju določb:
20 vastavalt nõuetele:
21 следвайки клаузите на:
22 laikantis nuostatų, pateikiamų:
23 ievērojot prasības, kas noteiktas:
24 održavajúc ustanovenia:
25 bunun koşullarına uygun olarak:

Low Voltage 2006/95/EC
Electromagnetic Compatibility 2004/108/EC *

01 Directives, as amended.
02 Direktiven, gemäß Änderung.
03 Directives, telles que modifiées.
04 Richtlijnen, zoals gewijzigd.
05 Directivas, según lo enmendado.
06 Direttive, come da modifica.
07 Οδηγιών, όπως έχουν τροποποιηθεί.
08 Directivas, conforme alteração em.
09 Директив со всеми поправками.
10 Direktiver, med senere ændringer.
11 Direktiv, med företagna ändringar.
12 Direktiver, med foretatte endringer.
13 Direktiivejä, sellaisina kuin ne ovat muutettuina.
14 v platném znění.
15 Smjernice, kako je izmijenjeno.
16 irányelv(ek) és módosításaik rendelkezéseit.
17 z późniejszymi poprawkami.
18 Directivelor, cu amendamentele respective.
19 Direktive z vsemi spremembami.
20 Direktiivid koos muudatustega.
21 Директиви, с техните изменения.
22 Direktyvose su papildymais.
23 Direktīvās un to papildinājumos.
24 Smernice, v platnom znení.
25 Değiştirilmiş halleriyle Yönetmelikler.

01 **Note*** as set out in <A> and judged positively by <B> according to the **Certificate** <C>.
02 **Hinweis*** wie in <A> aufgeführt und von <B> positiv beurteilt gemäß **Zertifikat** <C>.
03 **Remarque*** tel que défini dans <A> et évalué positivement par <B> conformément au **Certificat** <C>.
04 **Bemerk*** zoals vermeld in <A> en positief beoordeeld door <B> overeenkomstig **Certificaat** <C>.
05 **Nota*** como se establece en <A> y es valorado positivamente por <B> de acuerdo con el **Certificado** <C>.
06 **Nota*** delineato nel <A> e giudicato positivamente da <B> secondo il **Certificato** <C>.
07 **Σημείωση*** όπως καθορίζεται στο <A> και κρίνεται θετικά από το <B> σύμφωνα με το **Πιστοποιητικό** <C>.
08 **Nota*** tal como estabelecido em <A> e com o parecer positivo de <B> de acordo com o **Certificado** <C>.
09 **Примечание*** как указано в <A> и в соответствии с положительным решением <B> согласно **Свидетельству** <C>.
10 **Bemærk*** som anført i <A> og positivt vurderet af <B> i henhold til **Certifikat** <C>.
11 **Information*** enligt <A> och godkänts av <B> enligt **Certifikatet** <C>.
12 **Merk*** som det fremkommer i <A> og gjennom positiv bedømmelse av <B> ifølge **Sertifikat** <C>.
13 **Huom*** jotka on esitetty asiakirjassa <A> ja jotka <B> on hyväksynyt **Sertifikaatin** <C> mukaisesti.
14 **Poznámka*** jak bylo uvedeno v <A> a pozitivně zjištěno <B> v souladu s **osvědčením** <C>.
15 **Napomena*** kako je izloženo u <A> i pozitivno ocijenjeno od strane <B> prema **Certifikatu** <C>.
16 **Megjegyzés*** a(z) <A> alapján, a(z) <B> igazolta a megfelelést, a(z) <C> **tanúsítvány** szerint.
17 **Uwaga*** zgodnie z dokumentacją <A>, pozytywną opinią <B> i **Świadectwem** <C>.
18 **Notă*** aşa cum este stabilit în <A> şi apreciat pozitiv de <B> în conformitate cu **Certificatul** <C>.
19 **Opomba*** kot je določeno v <A> in odobreno s strani <B> v skladu s **certifikatom** <C>.
20 **Märkus*** nagu on näidatud dokumendis <A> ja heaks kiidetud <B> järgi vastavalt **sertifikaadile** <C>.
21 **Забележка*** както е изложено в <A> и оценено положително от <B> съгласно **Сертификата** <C>.
22 **Pastaba*** kaip nustatyta <A> ir kaip teigiamai nuspręsta <B> pagal **Sertifikatą** <C>.
23 **Piezīmes*** kā norādīts <A> un atbilstoši <B> pozitīvajam vērtējumam saskaņā ar **sertifikātu** <C>.
24 **Poznámka*** ako bolo uvedené v <A> a pozitívne zistené <B> v súlade s **osvedčením** <C>.
25 **Not*** <A>'da belirtildiği gibi ve <C> **Sertifikasına** göre <B> tarafından olumlu olarak değerlendirildiği gibi.

<A>	DAIKIN.TCF.025E19/07-2013
<B>	DEKRA (NB0344)
<C>	2082543.0551-QUA/EMC

Jean-Pierre Beuselinck
Director
Ostend, 4th of November 2013

DAIKIN EUROPE N.V.
Zandvoordestraat 300, B-8400 Oostende, Belgium

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1 About the documentation

1.1 About this document

Target audience

Authorised installers

Documentation set

This document is part of a documentation set. The complete set consists of:

Document	Contains…	Format
General safety precautions	Safety instructions that you must read before installing	Paper (in the box of the indoor unit)
Indoor unit installation manual	Installation instructions	
Installer reference guide	Preparation of the installation, technical specifications, good practices, reference data, …	Digital files on http://www.daikineurope.com/support-and-manuals/product-information/.
Addendum book for optional equipment	Additional info about how to install optional equipment	Paper (in the box of the indoor unit) Digital files on http://www.daikineurope.com/support-and-manuals/product-information/.

Latest revisions of the supplied documentation may be available on the regional Daikin website or via your dealer.

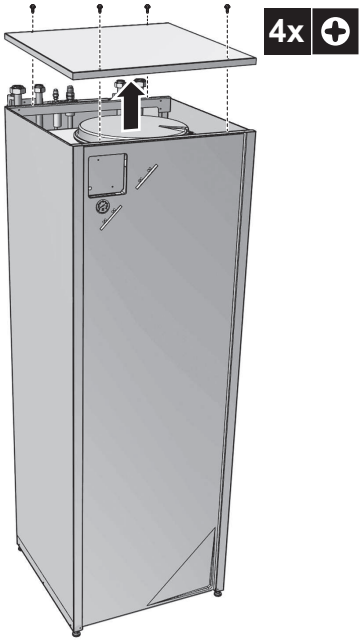
2 About the box

2.1 Indoor unit

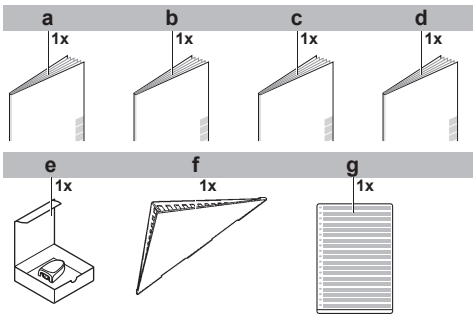
2.1.1 To remove the accessories from the indoor unit

1 Remove the screws at the top of the unit.

2 Remove the top panel.



3 Remove the accessories.



a General safety precautions
b Addendum book for optional equipment
c Installation manual
d Operation manual
e Remote outdoor sensor
f User interface kit cover
g Multilingual fluorinated greenhouse gases label

4 Reinstall the top panel.

3 Preparation

3.1 Preparing piping

3.1.1 To check the water volume of the space heating circuit and brine circuit

Minimum water volume

Check that the total water volume per circuit in the installation is minimum 20 liter, the internal water volume of the indoor unit NOT included.

INFORMATION

In critical processes, or in rooms with a high heat load, extra water might be required.

NOTICE

When circulation in each space heating loop is controlled by remotely controlled valves, it is important that the minimum water volume is guaranteed, even if all of the valves are closed.

3.2 Preparing electrical wiring

3.2.1 Overview of electrical connections for external and internal actuators

Item	Description	Wires	Maximum running current
Indoor unit power supply			
1	Power supply for E1 and E3	3+N + GND	(a)
2	Power supply for E2	2	(c)
4	Preferential kWh rate power supply (voltage free contact)	2	(d)
5	Normal kWh rate power supply	2	6.3 A
User interface			
6	User interface	2	(e)
Optional equipment			
12	Room thermostat	3 or 4	100 mA(b)
13	Outdoor ambient temperature sensor	2	(b)
14	Indoor ambient temperature sensor	2	(b)
15	Heat pump convector	4	100 mA(b)
Field supplied components			
16	Shut-off valve	2	100 mA(b)
17	Electricity meter	2 (per meter)	(b)
18	Domestic hot water pump	2	(b)
19	Alarm output	2	(b)
20	Changeover to external heat source control	2	(b)
22	Power consumption digital inputs	2 (per input signal)	(b)

(a) Refer to name plate on unit.
(b) Minimum cable section 0.75 mm².
(c) Cable section 2.5 mm².
(d) Cable section 0.75 mm² till 1.25 mm²; maximum length: 50 m. Voltage-free contact shall ensure the minimum applicable load of 15 V DC, 10 mA.
(e) Cable section 0.75 mm² till 1.25 mm²; maximum length: 500 m. Applicable for both single user interface and dual use interface connection.

NOTICE

More technical specifications of the different connections are indicated on the inside of the indoor unit.

4 Installation

4.1 Opening the units

4.1.1 To open the indoor unit

1 Loosen and remove the screws at the bottom of the unit.

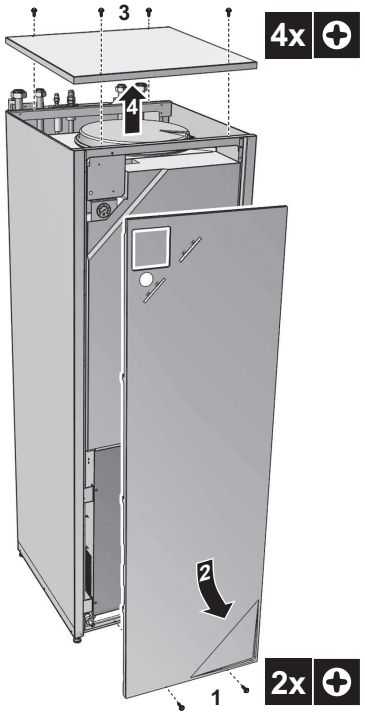
2 Slide the front panel of the unit downwards and remove it.

CAUTION

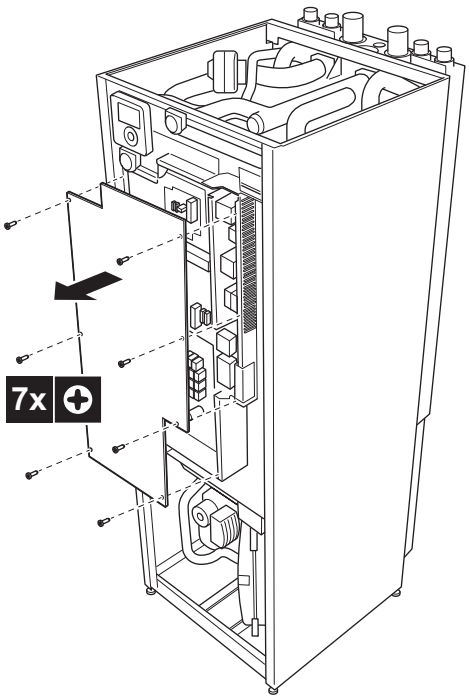
The front panel is heavy. Be careful NOT to jam your fingers when opening or closing the unit.

3 Loosen and remove the 4 screws that fix the top panel.

4 Remove the top panel from the unit.



4.1.2 To open the switch box cover of the indoor unit

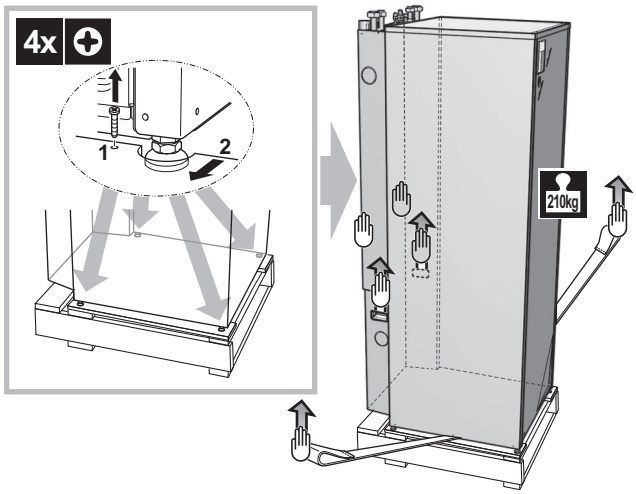


4.2 Mounting the indoor unit

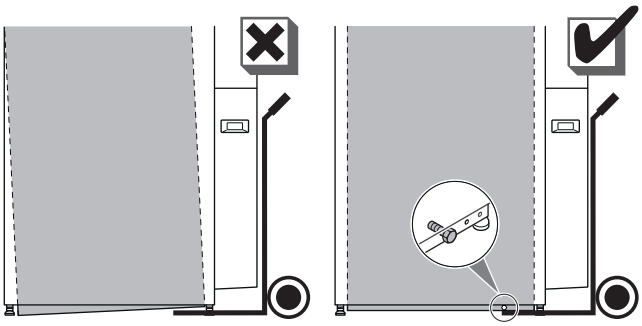
4.2.1 To install the indoor unit

1 Bring the unit on the pallet as close as possible to its installation place.

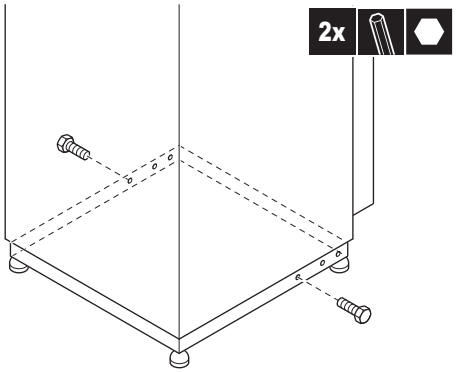
2 Lift the indoor unit from the pallet and place it on the floor.



3 Slide the indoor unit into position. Make sure that the side support bolts are present when handling the unit.

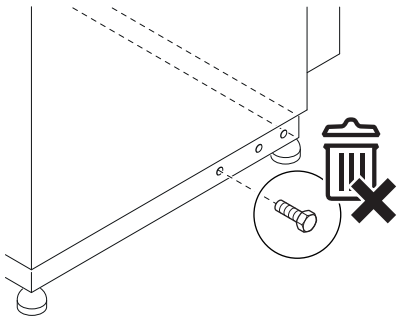


4 Unlink the heat pump module from the outer frame. ONLY remove the side support bolts!

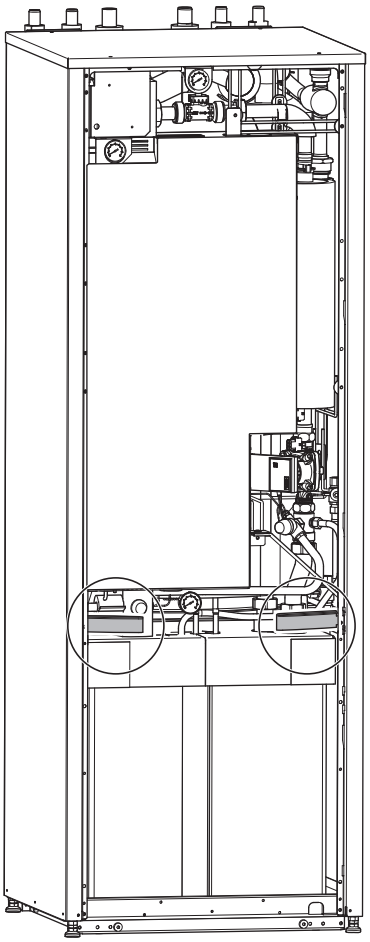


NOTICE

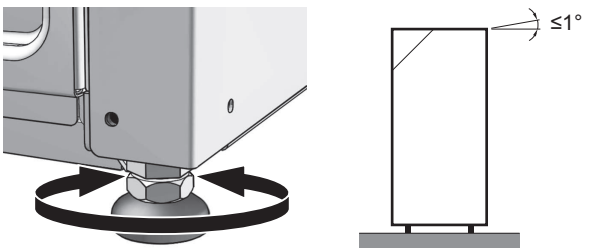
Do NOT throw away any bolts. They need to be re-inserted when transport or heavy manipulation is required.



5 Open the front plate of the unit. If needed, the nylon bands for lifting can be used.



6 Adjust the height of the 4 leveling feet of the outer frame to compensate for floor irregularities. The maximum allowed deviation is 1°.



NOTICE

For optimum sound reduction, carefully check if there is no gap between the bottom frame and the floor.

7 Adjust the height of the 2 front leveling feet of the inner frame to compensate for irregularities.

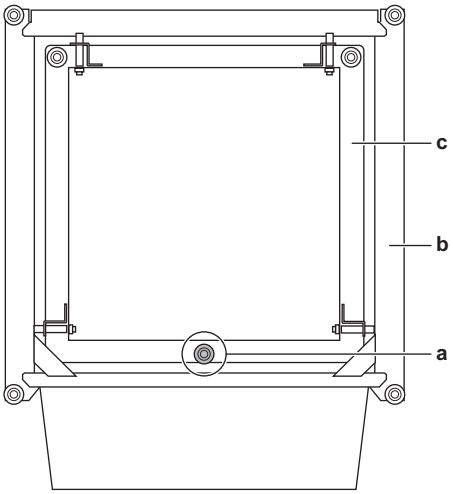
CAUTION

Check that the heat pump module does NOT touch the outer casing.

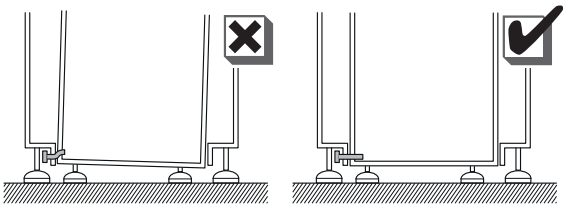
NOTICE

Check if the front support bolts remain levelled and are NOT stressed. The support feet from outer (b) and inner frame (c) MUST be adjusted so that those front bolts remain level. Do NOT adjust support foot (a)!

Bottom view:



Side view:

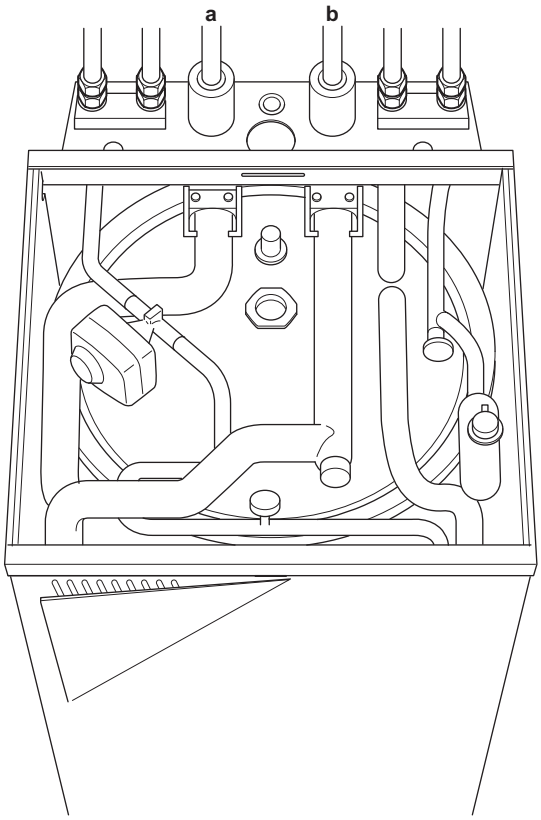


INFORMATION

To check if the front support bolts are not stressed, loosen them partly and fix them again afterwards.

4.3 Connecting the brine piping

4.3.1 To connect the brine piping



a Brine out
b Brine in

NOTICE

To facilitate service and maintenance, it is recommended to install shut-off valves as close as possible to the inlet and outlet of the unit.

4.3.2 To fill the brine circuit

WARNING

Before, during and after filling carefully check the brine circuit for leakage.

WARNING

Temperature of the fluid running through the evaporator can become negative. It MUST be protected against freezing. Refer to setting [A-04] in "5.2.2 Quick wizard: Standard" on page 16.

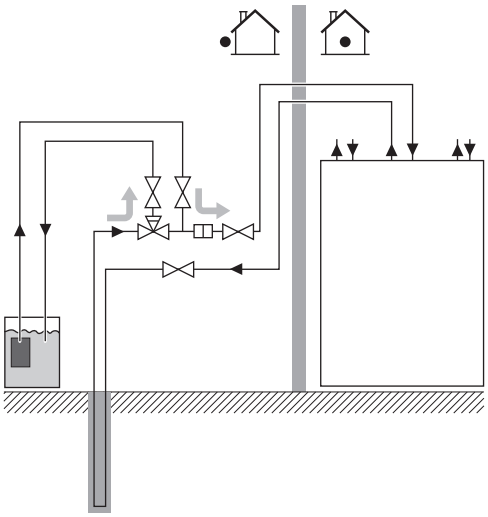
INFORMATION

The materials used in the units brine circuit are chemically resistant to the following anti-freeze fluids:

- 40 mass% propylene glycol
- 29 mass% ethanol

1 Connect the unit to the field supplied brine filling system.

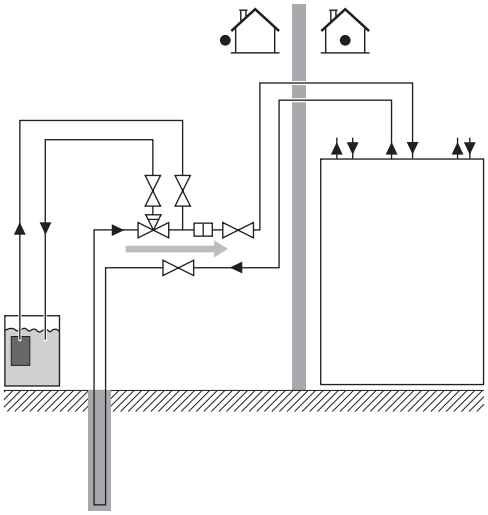
2 Position the 3-way valve correctly.



3 Fill the circuit.

4 Purge as much air as possible from the brine circuit.

5 Return the 3-way valve to its original position.



4.3.3 To insulate the brine piping

The piping in the complete brine circuit MUST be insulated to prevent reduction of the heating capacity.

Consider that the brine circuit piping inside the house can/will condensate. Foresee adequate insulation for these pipes.

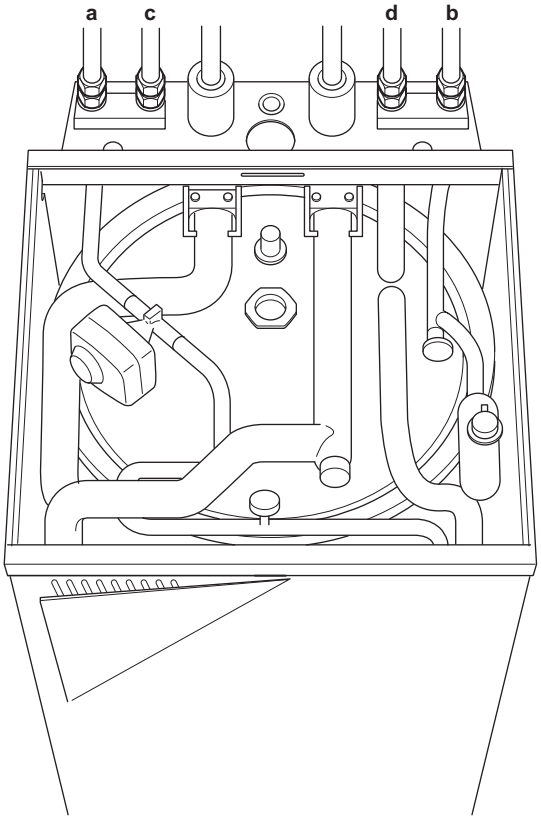
4.4 Connecting the water piping

4.4.1 To connect the water piping

NOTICE

Do NOT use excessive force when connecting the piping. Deformation of the piping can cause malfunctioning of the unit.

1 Connect the domestic hot water in and out pipes to the indoor unit.



a Space heating water out
b Space heating water in
c Domestic hot water out
d Domestic cold water in (cold water supply)

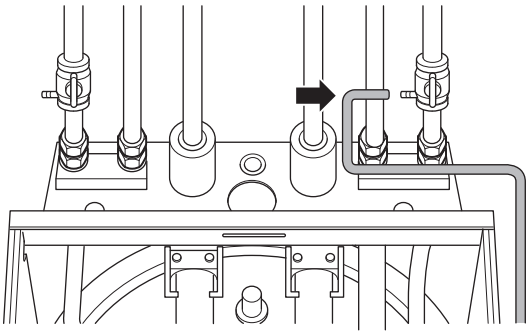
NOTICE

It is recommended to install shut-off valves to cold water in and hot water out connections. Shut-off valves are field supplied.

2 Connect the space heating in and out pipes to the indoor unit.

4.4.2 To fill the space heating circuit

1 Connect the water supply hose to the fill valve (field supply).



2 Open the fill valve.

3 Make sure that the automatic air purge valve is open (at least 2 turns).

INFORMATION

For location of the air purge valve, see Components: Indoor unit in the Installer reference guide.

4 Fill the circuit with water until the manometer indicates a pressure of ±2.0 bar.

5 Purge as much air as possible from the water circuit.

NOTICE

- Air in the water circuit can cause malfunctioning of the backup heater. During filling, it may not be possible to remove all the air from the circuit. Remaining air will be removed through the automatic air purge valves during the initial operating hours of the system. Additional filling with water afterwards may be required.
- To purge the system, use the special function as described in the chapter "6 Commissioning" on page 22. This function should be used to purge the heat exchanger coil of the domestic hot water tank.

6 Close the fill valve.

7 Disconnect the water supply hose from the fill valve.

4.4.3 To fill the domestic hot water tank

1 Open every hot water tap in turn to purge air from the system pipe work.

2 Open the cold water supply valve.

3 Close all water taps after all air is purged.

4 Check for water leaks.

5 Manually operate the field installed pressure relief valve to ensure that free water flow through the discharge pipe.

4.4.4 To insulate the piping

The piping in the complete brine circuit MUST be insulated to prevent reduction of the heating capacity.

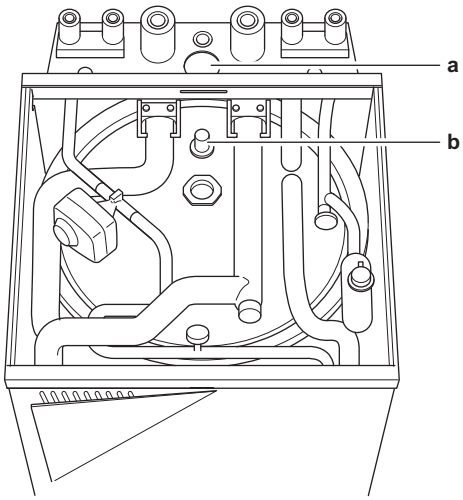
4.4.5 To connect the recirculation piping

1 Loosen and remove the screws at the bottom of the unit.

2 Slide the front panel of the unit downwards and remove it.

3 Loosen and remove the 4 screws that fix the top panel.

4 Remove the top panel from the unit.



a Knock-out hole
b Connection for recirculation piping

5 Remove the knock-out hole at the backside of the unit.

6 Connect the recirculation piping to the recirculation connection and route the piping through the knock-out hole at the backside of the unit.

7 Re-attach the insulation and casing.

4.4.6 To connect the drain hose

Condensate can form on the brine components inside the compressor department of the unit. The unit contains a drain pan. Depending on room ambient temperature, room humidity and operation condition, the drain pan can overflow. A drain hose is supplied with the unit.

The drain hose is routed to the backside on the left, close to the bottom of the unit. A field supplied drain pump might be needed to pump the water away to the field drain.

4.5 Connecting the electrical wiring

DANGER: RISK OF ELECTROCUTION

WARNING

ALWAYS use multicore cable for power supply cables.

4.5.1 About electrical compliance

Equipment complying with EN/IEC 61000-3-12 (European/ International Technical Standard setting the limits for harmonic currents produced by equipment connected to public low-voltage systems with input current >16 A and ≤75 A per phase.).

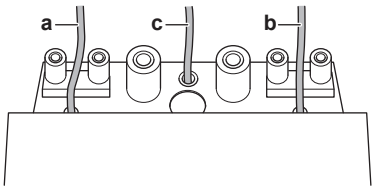
4.5.2 To connect the electrical wiring on the indoor unit

INFORMATION

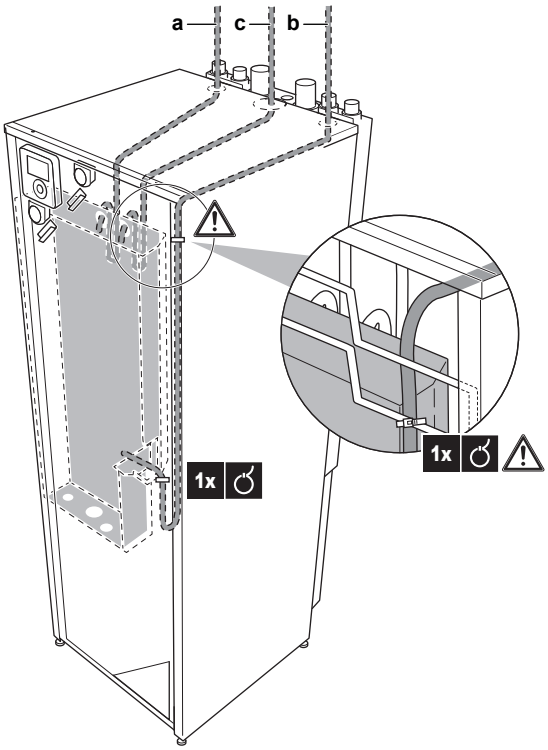
Foresee additional cable length of 35 cm for all wires which should be connected to X2M and X5M on sheet metal support above the hydro PCB. Additional wire length should be tie wrapped at the back side of the unit. Reason is to guarantee serviceability of, for example, the hydro PCB.

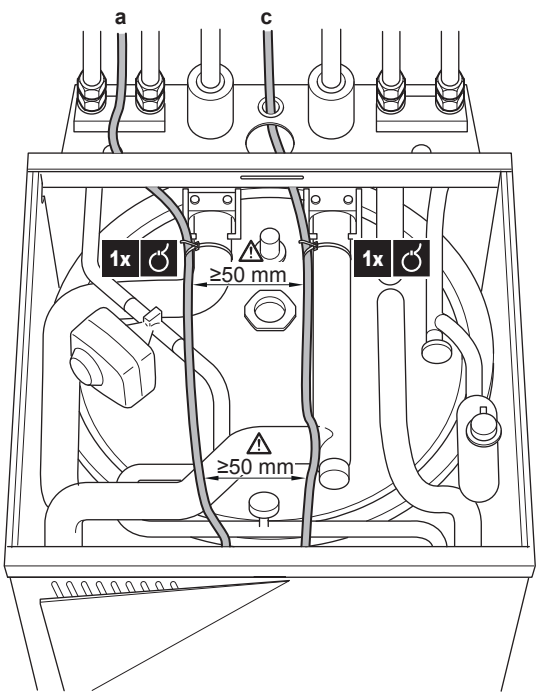
1 To open the indoor unit, see "4.1.1 To open the indoor unit" on page 5 and "4.1.2 To open the switch box cover of the indoor unit" on page 5.

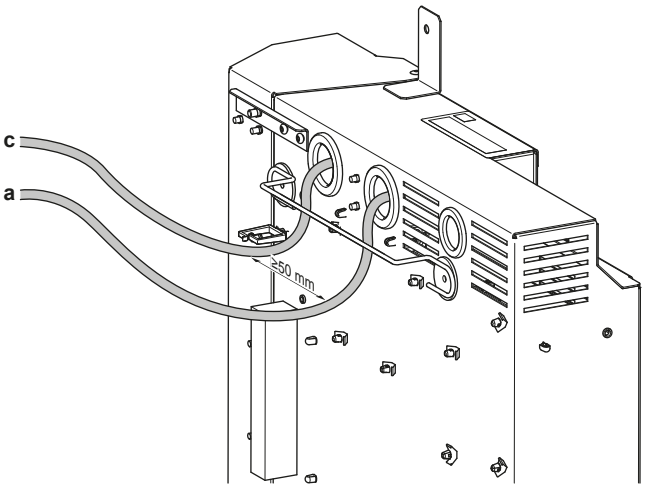
2 Wiring should enter the unit from the top:

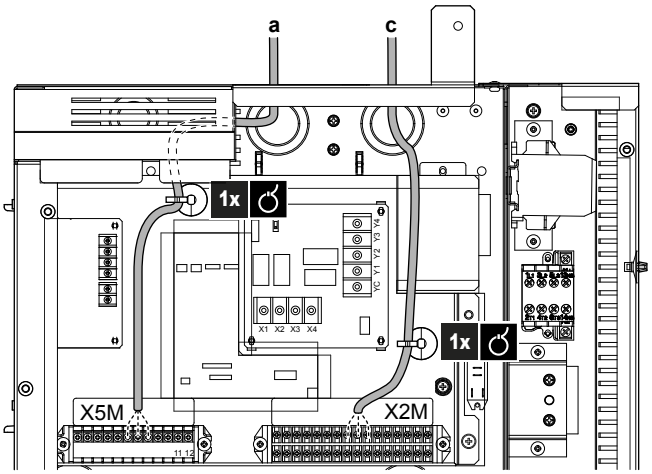


3 Routing of the wiring inside the unit should be as follows:









NOTICE

- Make sure that 50 mm is guaranteed between the low voltage (a) and high voltage (c) cables.
- Make sure that the cables (a) and (c) are routed between the wire guide and the backside of the switch box to prevent water ingress.

4 Fix the cable with cable ties to the cable tie mountings to ensure strain relief and to make sure that it does NOT come in contact with the piping and sharp edges.

Routing	Possible cables (depending on unit type and installed options)
a Low voltage	▪ User interface ▪ Power consumption digital inputs (field supply) ▪ Outdoor ambient temperature sensor ▪ Indoor ambient temperature sensor (option) ▪ Electrical meters (field supply)

Routing	Possible cables (depending on unit type and installed options)
b High voltage power supply	▪ Normal kWh rate power supply (power supply for unit)
c High voltage control signal	▪ Preferential kWh rate power supply ▪ Preferential power supply contact ▪ Heat pump convector (option) ▪ Room thermostat (option) ▪ Shut-off valve (field supply) ▪ Domestic hot water pump (field supply) ▪ Alarm output ▪ Changeover to external heat source control

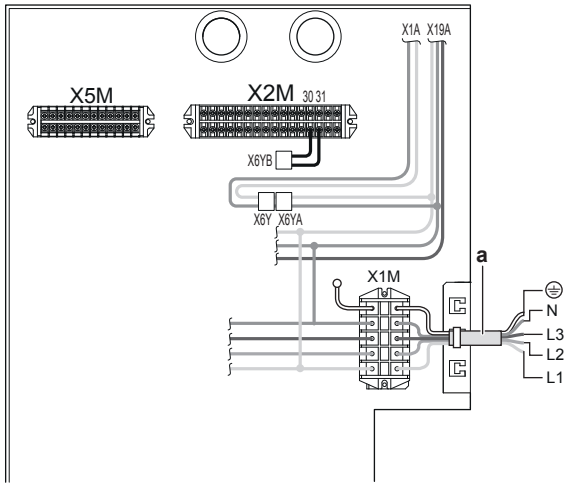
CAUTION

Do NOT push or place redundant cable length in the unit.

4.5.3 To connect the main power supply

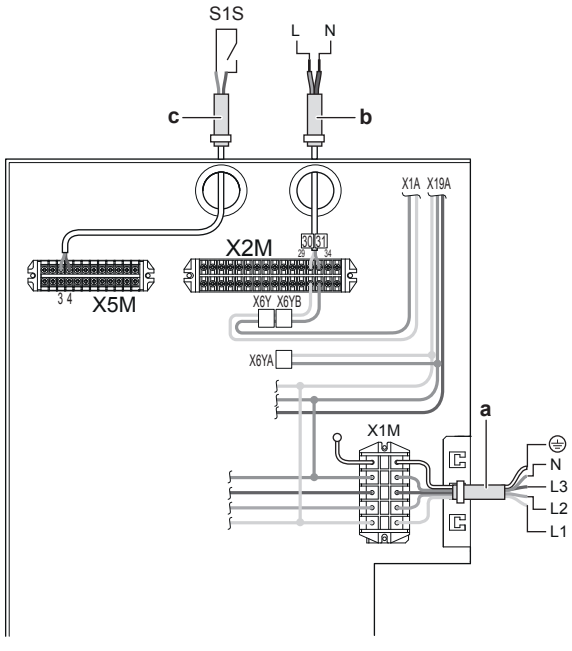
1 Connect the main power supply.

In case of normal kWh rate power supply



Legend: see illustration below.

In case of preferential kWh rate power supply



a Main power supply
b Normal kWh rate power supply
c Preferential power supply contact

2 Fix the cable with cable ties to the cable tie mountings.

INFORMATION

In case of preferential kWh rate power supply, the necessity of separate normal kWh rate power supply to indoor unit (b) X2M30/31 depends on the type of preferential kWh rate power supply.

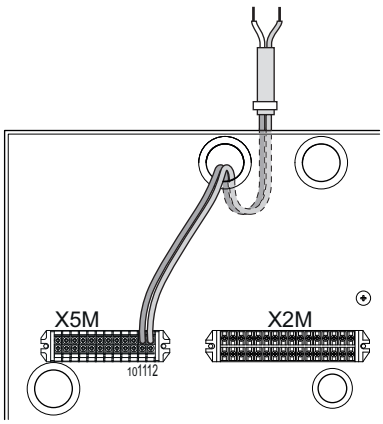
Separate connection to the indoor unit is required:

- if preferential kWh rate power supply is interrupted when active, OR
- if no power consumption of the indoor unit is allowed at the preferential kWh rate power supply when active.

4.5.4 To connect the external temperature sensor

If the desired leaving water temperature is weather dependent, the full time outdoor temperature measurement is important. This is possible via the external temperature sensor delivered as accessory.

1 Connect the external temperature sensor cable to the indoor unit.

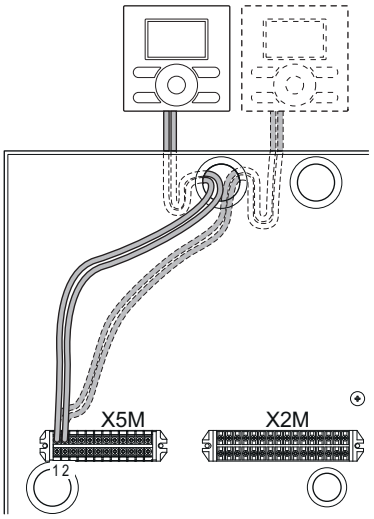


2 Fix the cable with cable ties to the cable tie mountings.

3 Install the external temperature sensor as described in the installation manual of the sensor.

4.5.5 To connect the user interface

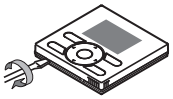
1 Connect the user interface cable to the indoor unit.



2 Fix the cable with cable ties to the cable tie mountings.

To fix the user interface to the unit

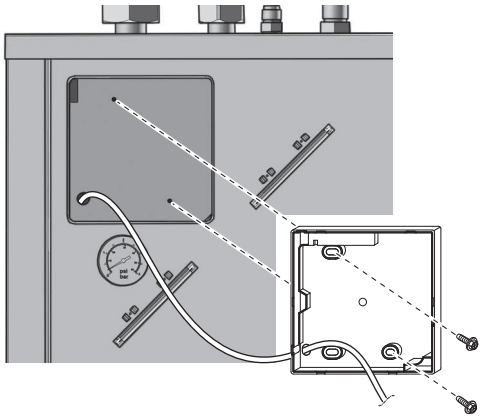
1 Insert a screwdriver into the slots underneath the user interface and carefully separate the faceplate from the wallplate.



NOTICE

The PCB is mounted in the faceplate of the user interface. Be careful NOT to damage it.

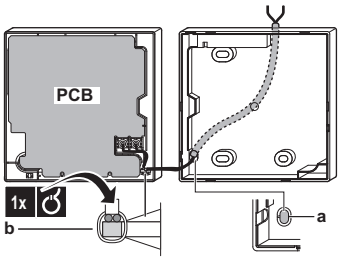
2 Fix the wallplate of the user interface to the frontplate of the unit.



3 Cut off a 2 wire conductor.

4 Connect the wires to the user interface as shown below.

From the rear



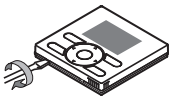
a Notch this part for the wiring to pass through with nippers etc.

b Secure the wiring to the front part of the casing using the wiring retainer and clamp.

5 Reinstall the faceplate onto the wallplate.

To fix the user interface to the wall in case of installation as room thermostat

1 Insert a screwdriver into the slots underneath the user interface and carefully separate the faceplate from the wallplate.



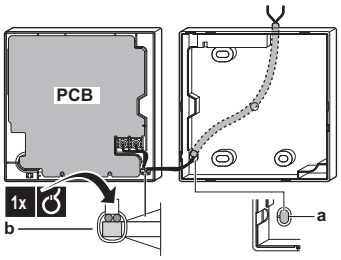
NOTICE

The PCB is mounted in the faceplate of the user interface. Be careful NOT to damage it.

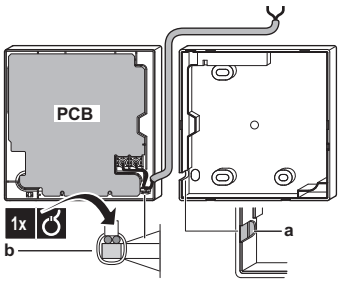
2 Fix the wallplate of the user interface to the wall.

3 Connect the wires to the user interface as shown below

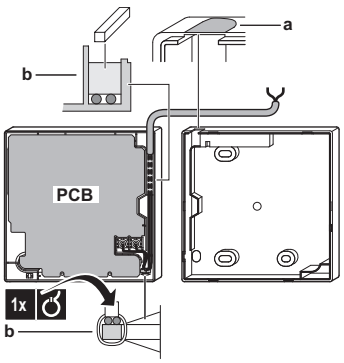
From the rear



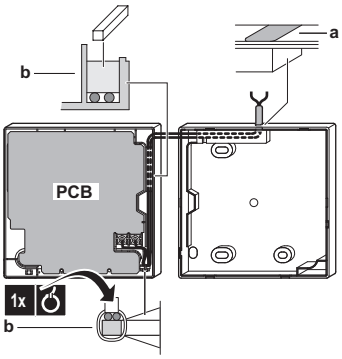
From the left



From the top



From the top center



a Notch this part for the wiring to pass through with nippers etc.
b Secure the wiring to the front part of the casing using the wiring retainer and clamp.

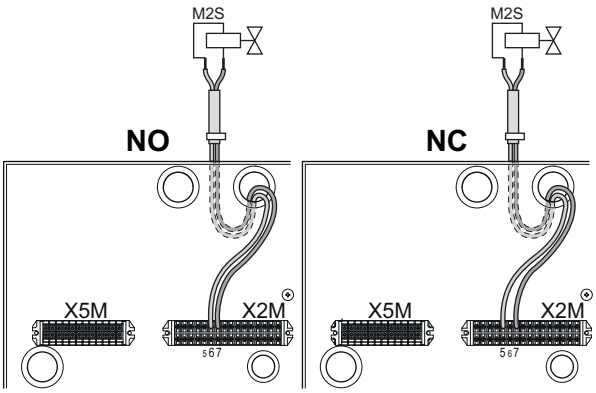
4 Reinstall the faceplate onto the wallplate.

4.5.6 To connect the shut-off valve

1 Connect the valve control cable to the appropriate terminals as shown in the illustration below.

NOTICE

Wiring is different for a NC (normal closed) valve and a NO (normal open) valve.



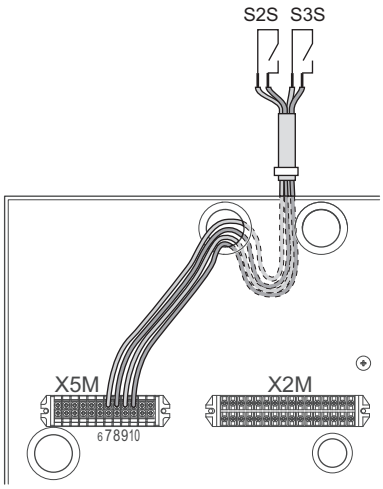
2 Fix the cable with cable ties to the cable tie mountings.

4.5.7 To connect the electrical meters

INFORMATION

In case of an electrical meter with transistor output, check the polarity. The positive polarity MUST be connected to X5M/7 and X5M/9; the negative polarity to X5M/8 and X5M/10.

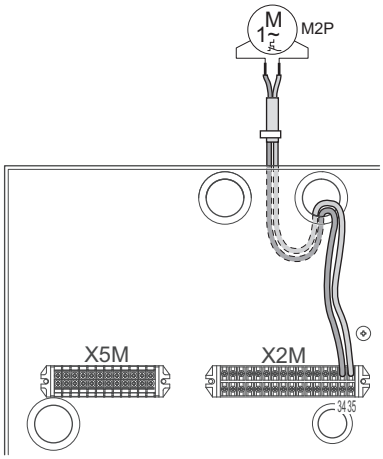
1 Connect the electrical meters cable to the appropriate terminals as shown in the illustration below.



2 Fix the cable with cable ties to the cable tie mountings.

4.5.8 To connect the domestic hot water pump

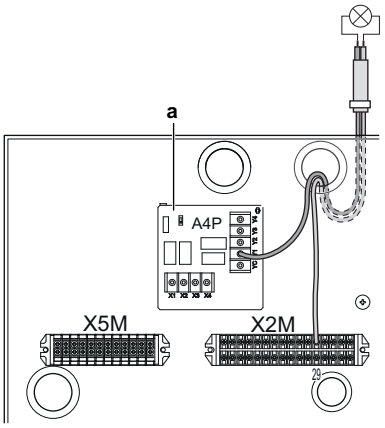
1 Connect the domestic hot water pump cable to the appropriate terminals as shown in the illustration below.



2 Fix the cable with cable ties to the cable tie mountings.

4.5.9 To connect the alarm output

1 Connect the alarm output cable to the appropriate terminals as shown in the illustration below.

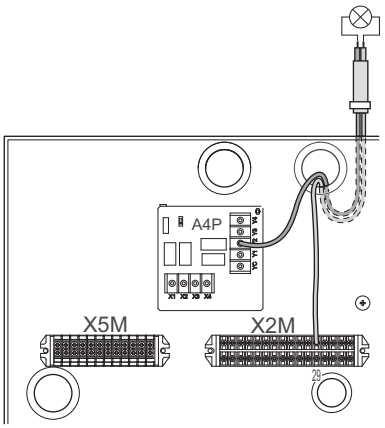


a Installation of EKRP1HB is required.

2 Fix the cable with cable ties to the cable tie mountings.

4.5.10 To connect the space heating ON/OFF output

1 Connect the space heating ON/OFF output cable to the appropriate terminals as shown in the illustration below.

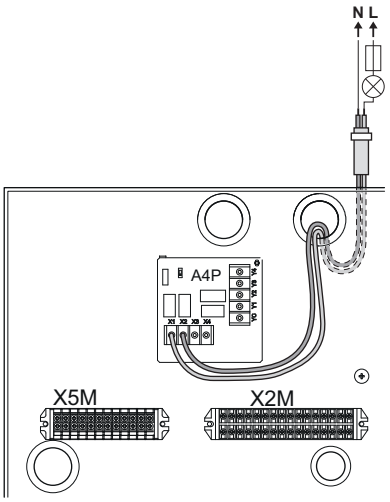


a Installation of EKRP1HB is required.

2 Fix the cable with cable ties to the cable tie mountings.

4.5.11 To connect the changeover to external heat source

1 Connect the changeover to external heat source cable to the appropriate terminals as shown in the illustration below.

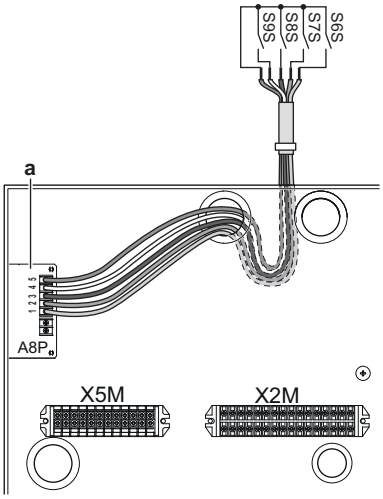


a Installation of EKRP1HB is required.

2 Fix the cable with cable ties to the cable tie mountings.

4.5.12 To connect the power consumption digital inputs

1 Connect the power consumption digital inputs cable to the appropriate terminals as shown in the illustration below.



a Installation of EKRP1AHTA is required.

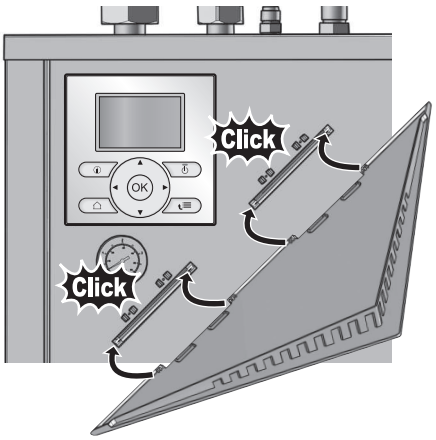
2 Fix the cable with cable ties to the cable tie mountings.

4.6 Finishing the indoor unit installation

4.6.1 To fix the user interface cover to the indoor unit

1 Make sure that the front panel is removed from the indoor unit. See "4.1.1 To open the indoor unit" on page 5.

2 Plug the user interface cover into the hinges.



3 Mount the front panel to the indoor unit.

4.6.2 To close the indoor unit

1 Close the switch box cover.

2 Reinstall the top plate.

3 Reinstall the front panel.

NOTICE

When closing the indoor unit cover, make sure that the tightening torque does NOT exceed 4.1 N•m.

5 Configuration

5.1 Overview: Configuration

If you do NOT configure the system correctly, it might NOT work as expected. You can configure the system with the user interface.

When you turn ON the user interface for the first time (via the indoor unit), a quick wizard starts to help you configure the system. If necessary, you can also make changes to the configuration afterwards.

NOTICE

The explanation about the configuration in this chapter gives you ONLY basic explanations. For more detailed explanation and background information, see the installer reference guide.

The configuration influences the following:

- The calculations of the software
- What you can see on and do with the user interface

Legend for the settings tables:

- **#**: Breadcrumb in the menu structure
- **Code**: Code in the overview settings

When the installer settings are changed, the system will request to confirm. When confirmation is complete, the screen will shortly turn OFF and "busy" will be displayed for several seconds.

The most commonly used installation settings are accessible through the menu structure. Their location is mentioned by the breadcrumb indication (#). Additionally, all installer settings can also be found in "5.4 Menu structure: Overview installer settings" on page 20.

For access to the setting codes, see " To access the installer settings" on page 15.

Not all settings are accessible through the menu structure. Some are only accessible through their code. Then in the table explained below, the bread crumb is set as N/A (not applicable).

To access the installer settings

1 Set the user permission level to Installer.

2 Go to [A]: > Installer settings.

To access the overview settings

1 Set the user permission level to Installer.

2 Go to [A.8]: > Installer settings > Overview settings.

To set the user permission level to Installer

1 Go to [6.4]: > Information > User permission level.

2 Press for more than 4 seconds.

Result: is displayed on the home pages.

3 If you do NOT press any button for more than 1 hour or press again for more than 4 seconds, the installer permission level switches back to End user.

To switch between user permission levels (End user and Advanced end user)

1 Go to [6] or any of its submenus: > Information.

2 Press for more than 4 seconds.

Result: The user permission level switches to Adv. end user. Additional information is displayed and "+" is added to the menu title.

3 If you do NOT press any button for more than 1 hour or press again for more than 4 seconds, the user permission level switches back to End user.

To modify an overview setting

Example: Modify [1-01] from 15 to 20.

1 Go to [A.8]: > Installer settings > Overview settings.

2 Go to the corresponding screen of the first part of the setting by using the and button.

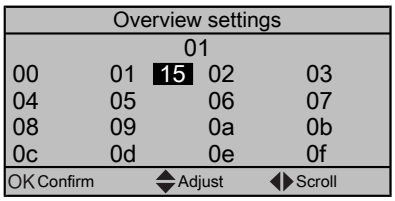
INFORMATION

An additional 0-digit is added to the first part of the setting when you access the codes in the overview settings.

Example: [1-01]: "1" will result in "**01**".

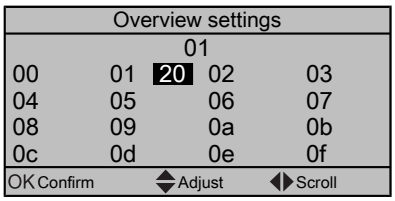
Overview settings				
		01		
00	01	15	02	03
04	05		06	07
08	09		0a	0b
0c	0d		0e	0f
OK Confirm		Adjust		Scroll

3 Go to the corresponding second part of the setting by using the ◀ and ▶ button.



Result: The value to be modified is now highlighted.

4 Modify the value by using the ▲ and ▼ button.

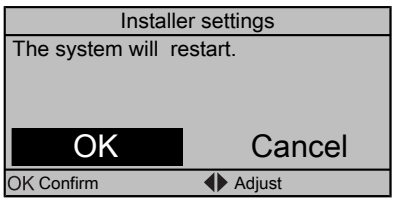


5 Push OK to confirm the modification of the parameter.

6 Repeat previous steps if you have to modify other settings.

7 Push the ⌂ or ☰ button to leave the overview settings menu.

8 Confirm by pressing OK.



5.2 Basic configuration

5.2.1 Quick wizard: Language / time and date

#	Code	Description
[A.1]	N/A	Language
[1]	N/A	Time and date

5.2.2 Quick wizard: Standard

Backup heater configuration

#	Code	Description
[A.2.1.5]	[5-0D]	BUH type: ▪ 4 (3PN,(1/2)): 6 kW 3N~ 400 V

Space heating settings

#	Code	Description
[A.2.1.7]	[C-07]	Unit temperature control: ▪ 0 (LWT control)(default): Unit operation is decided based on the leaving water temperature. ▪ 1 (Ext RT control): Unit operation is decided by the external thermostat. ▪ 2 (RT control): Unit operation is decided based on the ambient temperature of the user interface.
[A.2.1.B]	N/A	Only if there are 2 user interfaces: User interface location: ▪ 0 (At unit) ▪ 1 (In room)(default)
[A.2.1.8]	[7-02]	Number of water temperature zones: ▪ 0 (1 LWT zone): Main ▪ 1 (2 LWT zones): Main + additional
[A.2.1.9]	[F-0D]	Pump operation: ▪ 0 (Continuous): Continuous pump operation, regardless of thermo ON or OFF condition. ▪ 1 (Sample)(default): When thermo OFF condition occurs, the pump runs every 5 minutes and the water temperature is checked. If the water temperature is below target, unit operation can start. ▪ 2 (Request): Pump operation based on request. **Example:** Using a room thermostat and thermostat creates thermo ON/OFF condition.

Brine freezing temperature

#	Code	Description
[A.6.9]	[A-04]	Brine freezeup temp ▪ 0: 0°C ▪ 1: –2°C ▪ 2: –4°C ▪ 3: –6°C ▪ 4: –8°C ▪ 5: –10°C ▪ 6: –12°C ▪ 7 (default): –14°C

NOTICE

The setting brine freezing temperature can be modified and the read out is correct in [A.6.9] Brine freezeup temp ONLY after having accessed menu [A.8] Overview settings.

This setting can ONLY be modified and/or saved and the read out is ONLY correct if the communication between hydro module and compressor module is present. The communication between hydro module and compressor module is NOT guaranteed and/or applicable if:

- error "U4" appears on the user interface,
- the heat pump module is connected to preferential kWh rate power supply where power supply is interrupted and preferential kWh rate power supply is activated.

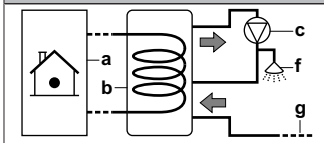
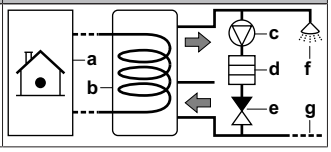
Capacity boost

#	Code	Description
N/A	[A-03]	Compressor frequency ▪ 0 (default): normal ▪ 1: boost

5.2.3 Quick wizard: Options

Domestic hot water settings

#	Code	Description
N/A	[E-05]	DHW operation: ▪ 0: N/A ▪ 1 (Yes): Installed
[A.2.2.A]	[D-02]	DHW pump: ▪ 0 (No)(default): NOT installed ▪ 1 (Secondary rtrn): Installed for instant hot water ▪ 2 (Disinf. shunt): Installed for disinfection See also illustrations below.

Domestic hot water pump installed for…	
Instant hot water	Disinfection
	

a Indoor unit
b Tank
c Domestic hot water pump
d Heater element
e Non-return valve
f Shower
g Cold water

Thermostats and external sensors

#	Code	Description
[A.2.2.4]	[C-05]	External room thermostat for the **main** zone: ▪ 1 (Thermo ON/OFF): When the used external room thermostat or heat pump convector can only send a thermo ON/OFF condition.
[A.2.2.5]	[C-06]	External room thermostat for the **additional** zone: ▪ 1 (Thermo ON/OFF): When the used external room thermostat or heat pump convector can only send a thermo ON/OFF condition.
[A.2.2.B]	[C-08]	External sensor: ▪ 0 (No)(default): NOT installed. ▪ 2 (Room sensor): Connected to PCB measuring the indoor temperature.

Digital I/O PCB

#	Code	Description
[A.2.2.6.1]	[C-02]	External backup heater source: ▪ 0 (No)(default): None ▪ 1 (Bivalent): Gas, oil boiler
[A.2.2.6.3]	[C-09]	Alarm output on optional EKRP1HB PCB: ▪ 0 (Normally open)(default): The alarm output will be powered when an alarm occurs. ▪ 1 (Normally closed): The alarm output will NOT be powered when an alarm occurs. This installer setting allows distinction between detection of an alarm and detection of a power failure to the unit. See also table below (Alarm output logic).

Alarm output logic

[C-09]	Alarm	No alarm	No power supply to unit
0 (default)	Closed output	Open output	Open output
1	Open output	Closed output	

Demand PCB

#	Code	Description
[A.2.2.7]	[D-04]	Demand PCB Indicates if the optional demand PCB is installed. ▪ 0 (No)(default): NOT installed ▪ 1 (Yes): Installed

Energy metering

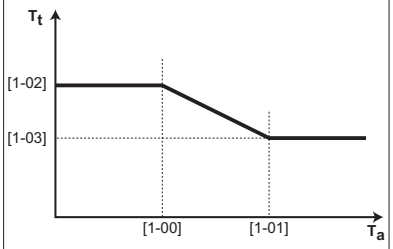
#	Code	Description
[A.2.2.8]	[D-08]	Optional external kWh meter 1: ▪ 0 (No): NOT installed ▪ 1: Installed (0.1 pulse/kWh) ▪ 2: Installed (1 pulse/kWh) ▪ 3: Installed (10 pulse/kWh) ▪ 4: Installed (100 pulse/kWh) ▪ 5: Installed (1000 pulse/kWh)
[A.2.2.9]	[D-09]	Optional external kWh meter 2: ▪ 0 (No): NOT installed ▪ 1: Installed (0.1 pulse/kWh) ▪ 2: Installed (1 pulse/kWh) ▪ 3: Installed (10 pulse/kWh) ▪ 4: Installed (100 pulse/kWh) ▪ 5: Installed (1000 pulse/kWh)

5.2.4 Quick wizard: Capacities (energy metering)

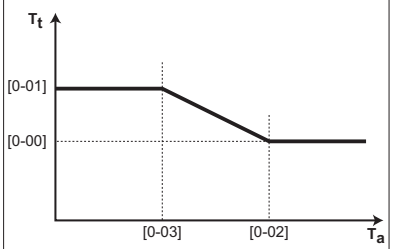
#	Code	Description
[A.2.3.2]	[6-03]	Capacity of the first step of the backup heater at nominal voltage [kW]
[A.2.3.3]	[6-04]	Capacity difference between the second and first step of the backup heater [kW]

5.2.5 Space heating control

Leaving water temperature: Main zone

#	Code	Description
[A.3.1.1.1]	N/A	Set point mode: ▪ 0 (Fixed): Absolute ▪ 1 (Weather dep.): Weather-dependent ▪ 2 (Fixed/scheduled): Absolute + scheduled (only for leaving water temperature control) ▪ 3 (WD/scheduled): Weather-dependent + scheduled (only for leaving water temperature control)
[A.3.1.1.3]	[1-00] [1-01] [1-02] [1-03]	Weather-dependent curve (heating):  ▪ T_t: Target leaving water temperature (main) ▪ T_a: Outdoor temperature

Leaving water temperature: Additional zone

#	Code	Description
[A.3.1.2.1]	N/A	Set point mode: ▪ 0 (Fixed): Absolute ▪ 1 (Weather dep.): Weather-dependent ▪ 2 (Fixed/scheduled): Absolute + scheduled (only for leaving water temperature control) ▪ 3 (WD/scheduled): Weather-dependent + scheduled (only for leaving water temperature control)
[A.3.1.2.3]	[0-00] [0-01] [0-02] [0-03]	Weather-dependent curve (heating):  ▪ T_t: Target leaving water temperature (additional) ▪ T_a: Outdoor temperature

Leaving water temperature: Delta T emitter

#	Code	Description
[A.3.1.3.1]	[9-09]	Heating: required temperature difference between entering and leaving water. In case a minimum temperature difference is required for the good operation of the heat emitters in heating mode.

Leaving water temperature: Modulation

#	Code	Description
[A.3.1.1.5]	[8-05]	Leaving water temperature modulation: ▪ 0 (No): Disabled ▪ 1 (Yes): Enabled. The leaving water temperature is calculated according to the difference between desired and actual room temperature. This allows better matching of the heat pump capacity to actual required capacity and results in less start/stop cycles of the heat pump and more economic operation.

Leaving water temperature: Emitter type

#	Code	Description
[A.3.1.1.7]	[9-0B]	Reaction time of the system: ▪ 0 (Quick)(default) **Example:** Small water volume and fan coils. ▪ 1 (Slow) **Example:** Large water volume, floor heating loops. Depending on the system water volume and the heat emitters type, the heat up of a space can take longer. This setting can compensate for a slow or a quick heating system by adjusting the unit capacity during the heat up cycle.

5.2.6 Domestic hot water control

#	Code	Description
[A.4.1]	[6-0D]	Domestic hot water Type: ▪ 0 (Reheat only): Only reheat operation is allowed. ▪ 1 (Reheat + sched.)(default): Same as 2, but between the scheduled heatup cycles, reheat operation is allowed. ▪ 2 (Scheduled only): The domestic hot water tank can ONLY be heated according to a schedule.
[A.4.3.1]	N/A	How is the tank temperature to be displayed on the user interface? ▪ As temperature. 60°C ▲▼ ▪ As graphic: The temperature has to be displayed as available hot water for x persons. If you choose this, you also have to configure which number equals which temperature under [A.4.3.2.1]~[A.4.3.2.6]: 4 ▲▼

#	Code	Description
[A.4.5]	[6-0E]	The maximum temperature that users can select for the domestic hot water. You can use this setting to limit the temperature at the hot water taps.

INFORMATION

It is recommended NOT to use the selection of ([6-0D]=0, [A.4.1] Domestic hot water Type=Reheat only).

The risk of space heating capacity shortage/comfort problems is significant (in case of frequent domestic hot water operation, frequent and long space heating interruption will happen).

5.2.7 Contact/helpdesk number

#	Code	Description
[6.3.2]	N/A	Number that users can call in case of problems.

5.3 Advanced configuration/ optimization

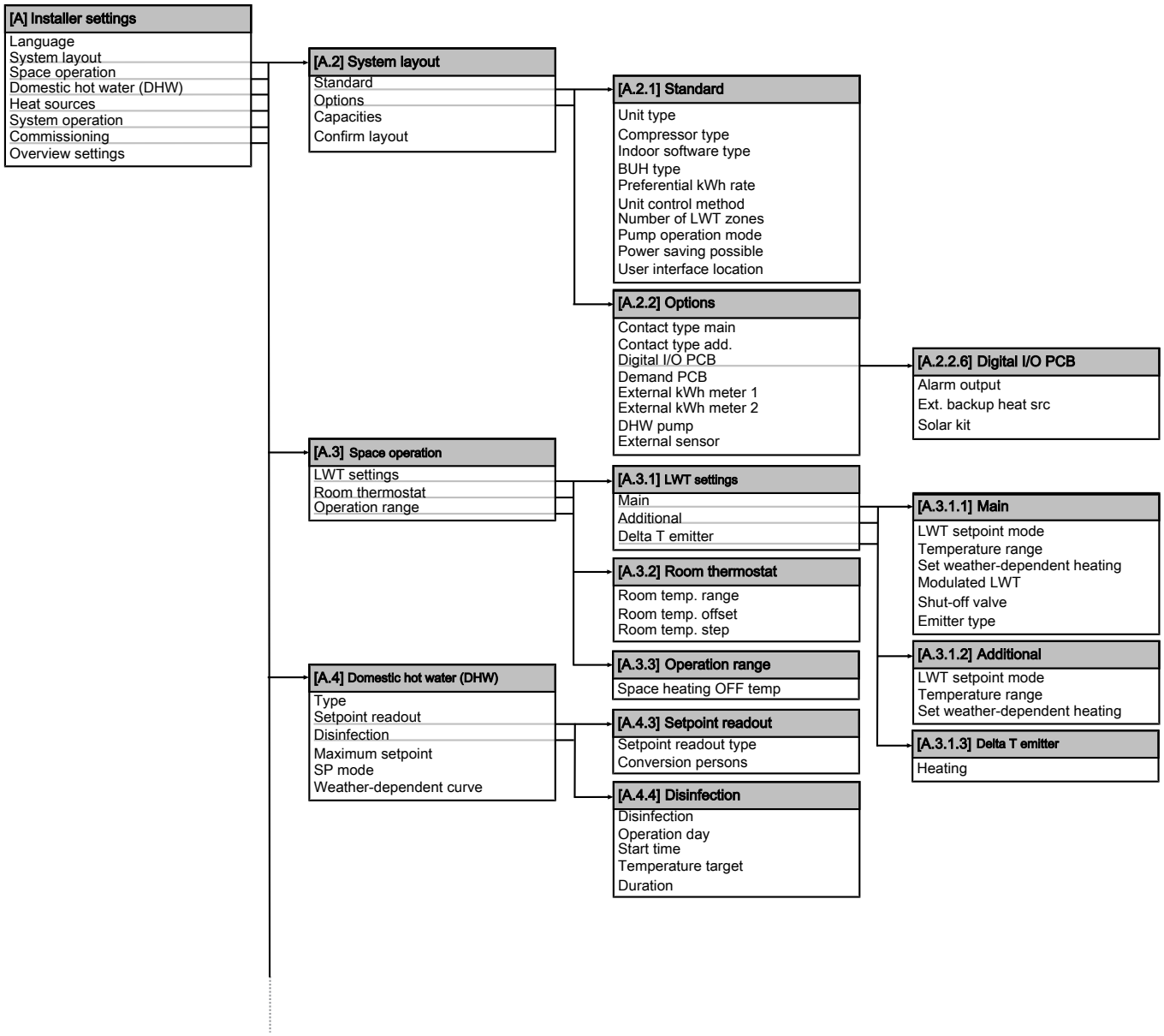
5.3.1 Heat source settings

Auto emergency

When the heat pump fails to operate the backup heater can serve as an emergency heater and either automatically or non-automatically take over the heat load. When auto emergency is activated and a heat pump failure occurs, the backup heater will automatically take over the heat load. When a heat pump failure occurs and auto emergency is not activated, the domestic hot water and space heating operations will stop and need to be recovered manually. The user interface will then ask you to confirm whether the backup heater can take over the heat load or not. When the heat pump fails, ⓘ will appear on the user interface. If the house is unattended for longer periods, we recommend that setting [A.5.1.2] Auto emergency operation shall be set to Automatic.

#	Code	Description
[A.5.1.2]	N/A	Defines whether in an emergency situation the backup heater is allowed to automatically take over the entire heat load or whether manual confirmation is required. ▪ 0: Manual (default) ▪ 1: Automatic

5.4 Menu structure: Overview installer settings

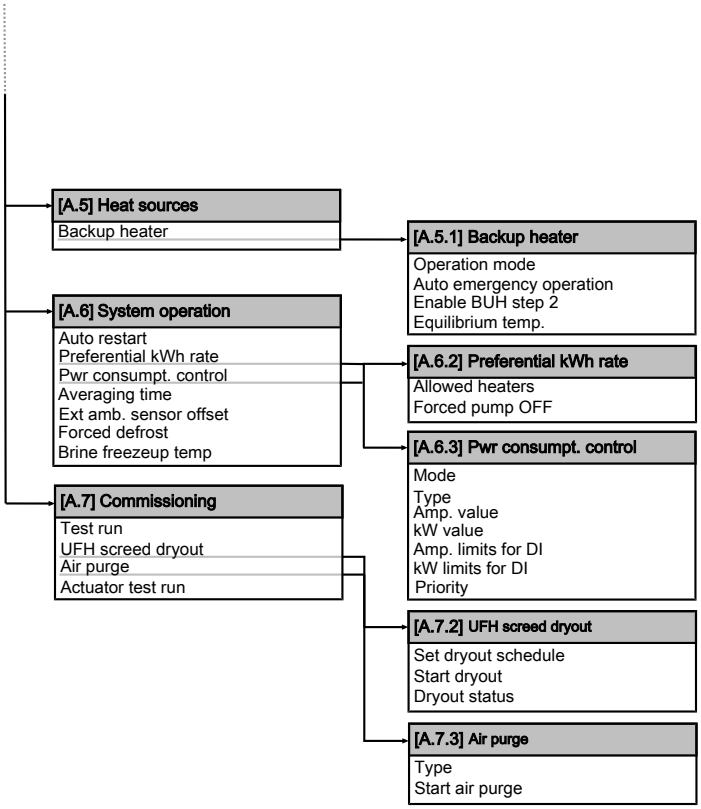


INFORMATION

Forced defrost settings are shown but are NOT applicable for this unit. Settings shall NOT be used or changed.

INFORMATION

Solar kit settings are shown but are NOT applicable for this unit. Settings shall NOT be used or changed.


[A.5] Heat sources
Backup heater
[A.5.1] Backup heater
Operation mode
Auto emergency operation
Enable BUH step 2
Equilibrium temp.
[A.6] System operation
Auto restart
Preferential kWh rate
Pwr consumpt. control
Averaging time
Ext amb. sensor offset
Forced defrost
Brine freezeup temp
[A.6.2] Preferential kWh rate
Allowed heaters
Forced pump OFF
[A.6.3] Pwr consumpt. control
Mode
Type
Amp. value
kW value
Amp. limits for DI
kW limits for DI
Priority
[A.7] Commissioning
Test run
UFH screed dryout
Air purge
Actuator test run
[A.7.2] UFH screed dryout
Set dryout schedule
Start dryout
Dryout status
[A.7.3] Air purge
Type
Start air purge

6 Commissioning

6.1 Checklist before test run

Do NOT operate the system before the following checks are OK:

☐	The **indoor unit** is properly mounted.
☐	The following **field wiring** has been carried out according to this document and the applicable legislation: ▪ Between the local supply panel and the indoor unit ▪ Between the indoor unit and the valves (if applicable) ▪ Between the indoor unit and the room thermostat (if applicable)
☐	The system is properly **earthed** and the earth terminals are tightened.
☐	The **fuses** or locally installed protection devices are installed according to this document, and have not been bypassed.
☐	The **power supply voltage** matches the voltage on the identification label of the unit.
☐	There are NO **loose connections** or damaged electrical components in the switch box.
☐	There are NO **damaged components** or **squeezed pipes** on the inside of the indoor unit.
☐	There are NO **refrigerant leaks**.
☐	The correct pipe size is installed and the **pipes** are properly insulated.
☐	There is NO **water and/or brine leak** inside the indoor unit.
☐	There are no **odour traces** noticeable of the used brine.
☐	The **space heating air purge** valve is open (at least 2 turns).
☐	The **pressure relief valves** purge to a safe location when opened.

NOTICE

NEVER operate the unit without thermistors, burning of the compressor may result.

6.2 To perform an air purge

Prerequisite: Make sure the user interface shows the home screens and that the space heating and domestic hot water demands are turned off.

1 Go to [A.7.3]: ☰ > Installer settings > Commissioning > Air purge.

2 Set the type, speed and circuit.

3 Select Start air purge and press OK.

4 Select OK and press OK.

Result: The air purge starts. It stops automatically when done. To stop it manually, press ⏻, select OK and press OK.

6.3 To perform a test run

Prerequisite: Make sure the user interface shows the home screens and that the space heating and domestic hot water demands are turned off.

1 Go to [A.7.1]: ☰ > Installer settings > Commissioning > Test run.

2 Select a test and press OK. **Example:** Heating.

3 Select OK and press OK.

Result: The test run starts. It stops automatically when done (±30 min). To stop it manually, press ⏻, select OK and press OK.

INFORMATION

If 2 user interfaces are present, you can start a test run from both user interfaces.

- The user interface used to start the test run displays a status screen.
- The other user interface displays a "busy" screen. You cannot stop the test run as long as the "busy" screen is shown.

6.4 To perform an actuator test run

Prerequisite: Make sure the user interface shows the home screens and that the space heating and domestic hot water demands are turned off.

1 Make sure the room temperature control, the leaving water temperature control and the domestic hot water control are turned OFF via the user interface.

2 Go to [A.7.4]: ☰ > Installer settings > Commissioning > Actuator test run.

3 Select an actuator and press OK. **Example:** Pump.

4 Select OK and press OK.

Result: The actuator test run starts. It automatically stops when finished. To stop it manually, press ⏻, select OK and press OK.

6.4.1 Possible actuator test runs

- Backup heater (step 1) test
- Backup heater (step 2) test
- Pump test (space heating)

INFORMATION

Calibration of the produced heat calculation is included in this test.

Make sure that air is purged before executing the test run. Also avoid causing disturbances in the water circuit during the test run.

- Brine pump test
- 2-way valve test
- 3-way valve test
- Bivalent signal test
- Alarm output test
- Circulation pump test

6.5 To perform an underfloor heating screed dryout

Prerequisite: Make sure the user interface shows the home screens and that the space heating and domestic hot water demands are turned off.

1 Go to [A.7.2]: ☰ > Installer settings > Commissioning > UFH screed dryout.

2 Set a dryout program.

3 Select Start dryout and press OK.

4 Select OK and press OK.

Result: The underfloor heating screed dryout starts. It stops automatically when done. To stop it manually, press ⏻, select OK and press OK.

7 Hand-over to the user

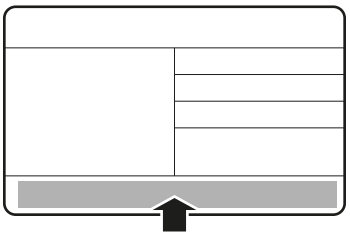
Once the test run is finished and the unit operates properly, please make sure the following is clear for the user:

- Fill in the installer setting table (in the operation manual) with the actual settings.
- Make sure that the user has the printed documentation and ask him/her to keep it for future reference. Inform the user that he can find the complete documentation on the url as earlier described in this manual.
- Explain the user how to properly operate the system and what he/she has to do in case of problems.
- Show the user what he/she has to do in relation to maintaining the unit.
- Explain the user about energy saving tips as described in the operation manual.

7.1 To fix the applicable language on the unit name plate

1 From the multilingual fluorinated greenhouse gases label peal off the applicable language.

2 Stick it on top of the marked area on the unit name plate.



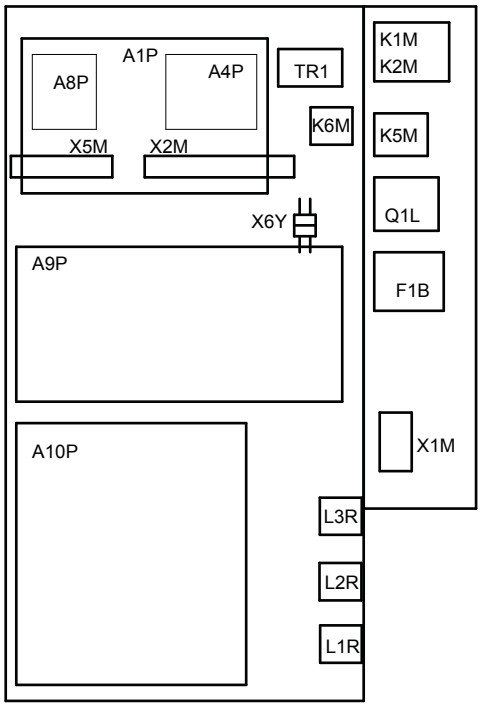
8 Technical data

8.1 Wiring diagram

8.1.1 Wiring diagram: Indoor unit

See the internal wiring diagram supplied with the unit (on the inside of the indoor unit switch box cover). The abbreviations used are listed below.

Position in switch box



User installed options:

Remote user interface

External indoor thermistor

Digital I/O PCB

Demand PCB

Main leaving water temperature:

On/OFF thermostat (wired)

On/OFF thermostat (wireless)

External thermistor on On/OFF thermostat (wireless)

Heat pump convector

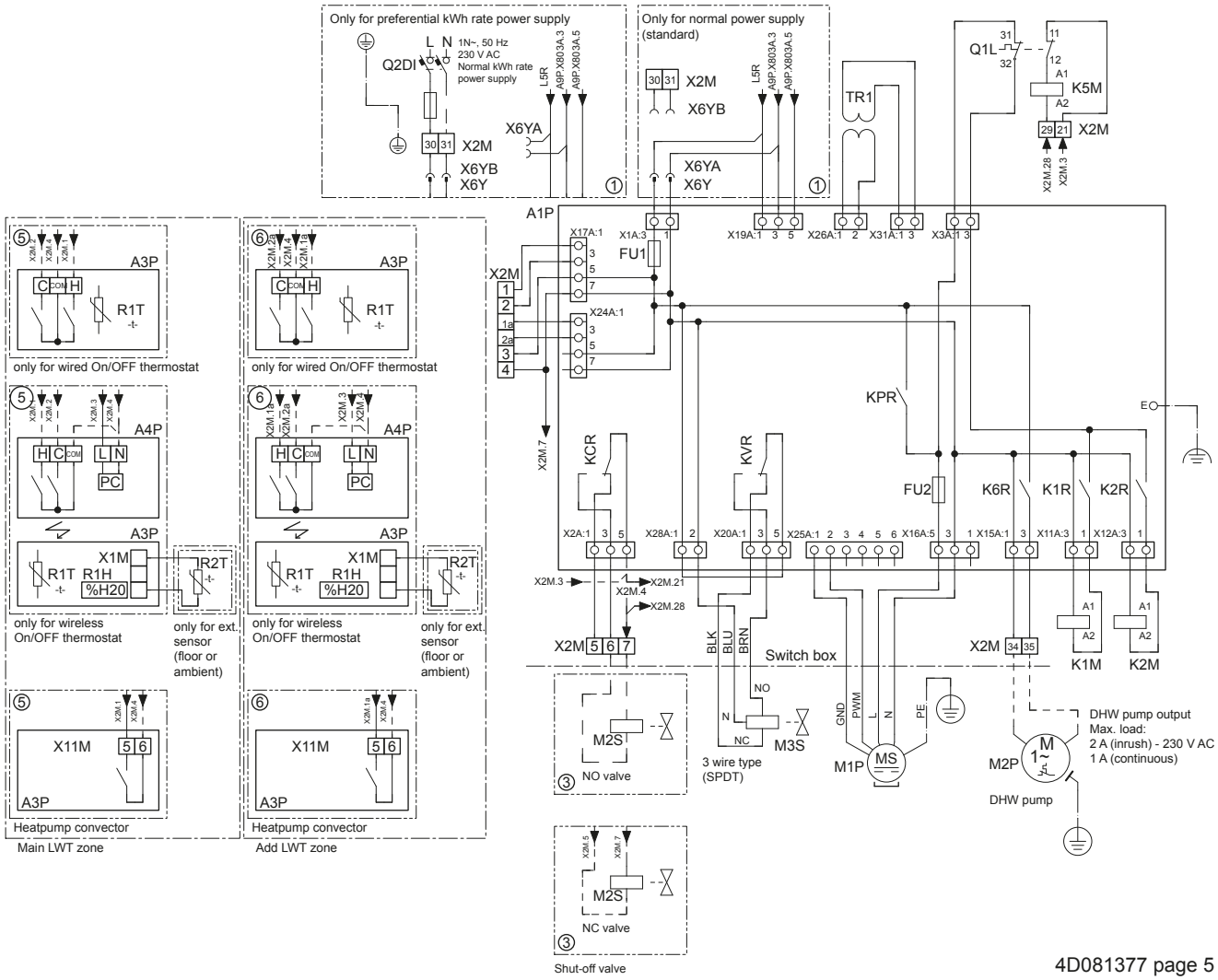
Additional leaving water temperature:

On/OFF thermostat (wired)

On/OFF thermostat (wireless)

External thermistor on On/OFF thermostat (wireless)

Heat pump convector



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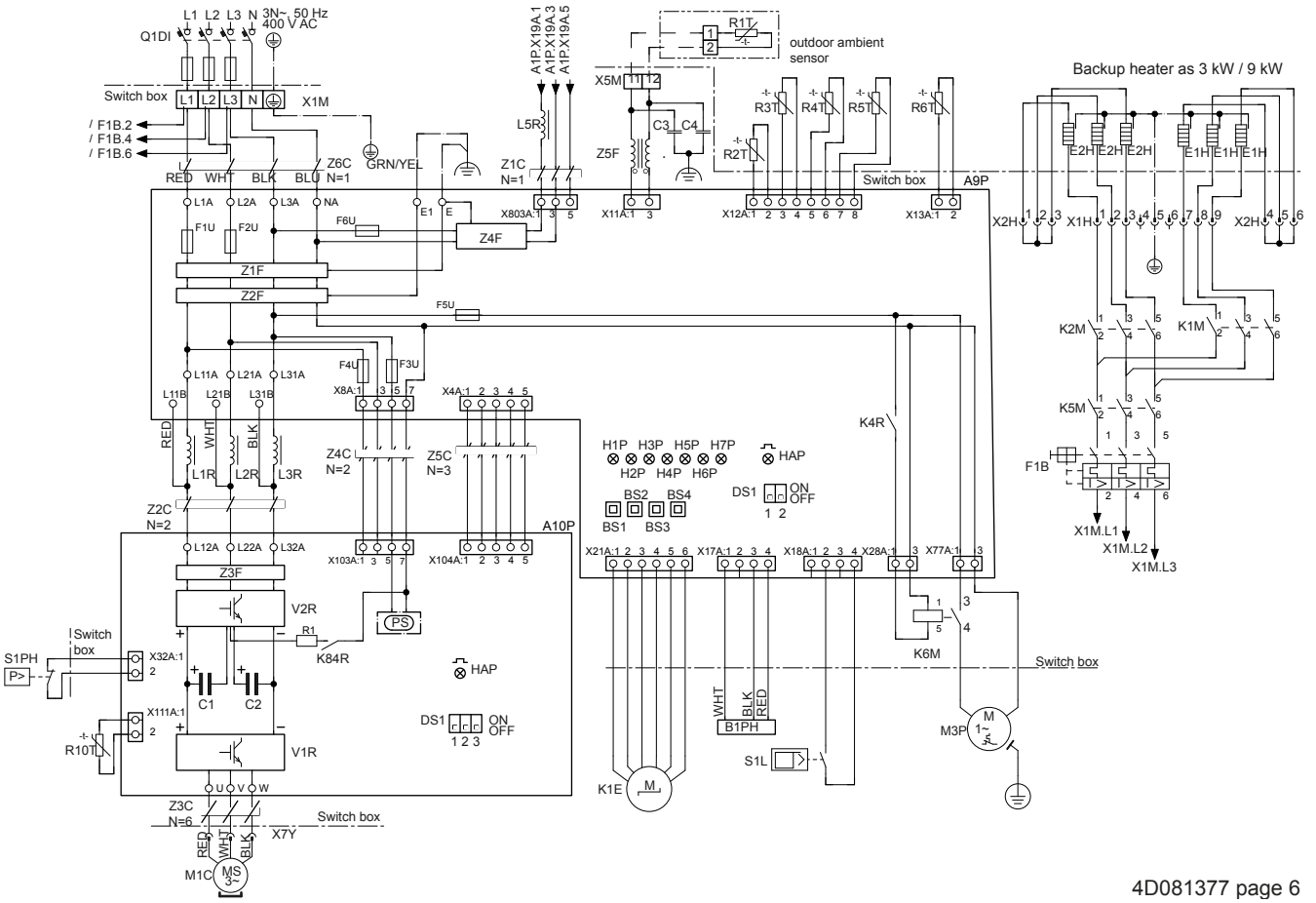

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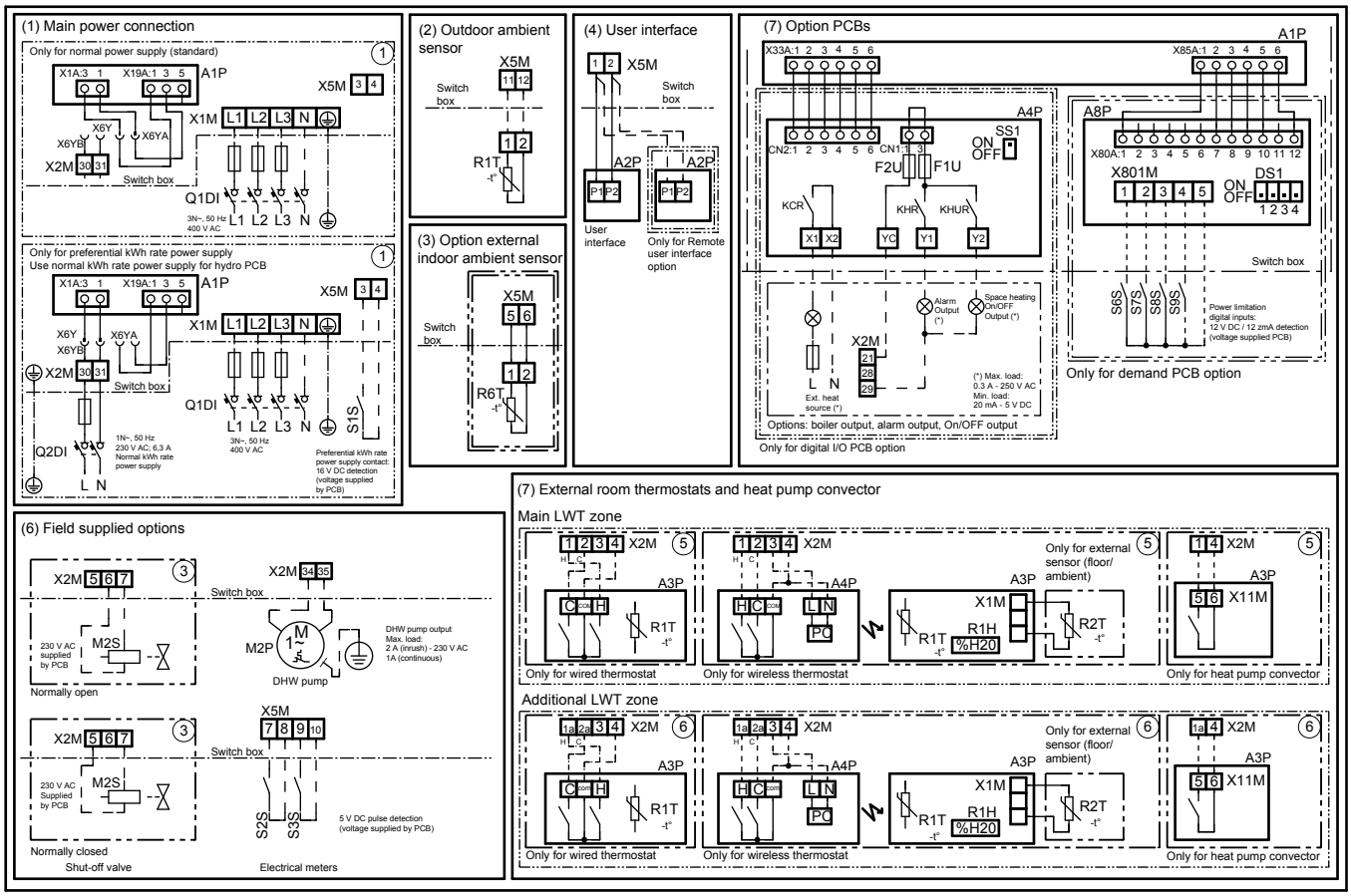
A1P		Main PCB (hydrobox)
A2P		User interface PCB
A3P	*	On/OFF thermostat
A3P	*	Heat pump convector
A4P	*	Digital I/O PCB
A4P	*	Receiver PCB (Wireless On/OFF thermostat, PC=power circuit)
A8P	*	Demand PCB
A9P		Main PCB (refrigerant, brine)
A10P		Main PCB (inverter)
B1L		Flow sensor
B1PH		High pressure sensor
BS1~BS4		Push button
C1~C4		Capacitor
CN* (A4P)	*	Connector
DS1 (A8P)	*	DIP switch
DS1 (A9P)		DIP switch
DS1 (A10P)		DIP switch
E1H		Backup heater element (1 kW)
E2H		Backup heater element (2 kW)
F1B		Overcurrent fuse backup heater
F1U, F2U (A4P)	*	Fuse 5 A 250 V
F1U, F2U (A9P)		Fuse 35.5 A 500 V
F3U~F6U (A9P)		Fuse T, 6.3 A 250 V
FU1 (A1P)		Fuse T, 6.3 A 250 V
H1P~H7P		LED
HAP		LED
K1E		Electronic expansion valve
K1M, K2M		Contactor backup heater
K5M		Safety contactor backup heater
K6M		Relay
K*R		Relay on PCB
L1R~L3R		Reactor
L5R		Reactor transmission line
M1C		Motor (compressor)
M1P		Main water supply pump
M2P	#	Domestic hot water pump
M3P		Brine supply pump
M2S	#	Shut-off valve
M3S		3-way valve for floor heating/domestic hot water
PS		Switching power supply
Q*DI	#	Earth leakage circuit breaker
Q1L		Thermal protector backup heater
R1		Resistor
R1T (A1P)		Outlet water heat temperature sensor (leaving water condenser)
R1T (A2P)		Ambient sensor user interface
R1T (A3P)	*	Ambient sensor On/OFF thermostat
R1T (A9P)		Ambient air sensor
R2T (A1P)		After backup heater temperature sensor
R2T (A3P)	*	External sensor (floor or ambient)
R2T (A9P)		Discharge sensor
R3T (A1P)		Refrigerant liquid side thermistor
R3T (A9P)		Suction sensor

R4T (A1P)		Inlet water temperature sensor (entering water condenser)
R4T (A9P)		2-phase sensor (Tx)
R5T (A1P)		Domestic hot water tank temperature sensor
R5T (A9P)		Brine entering water
R6T (A1P)	*	External indoor ambient thermistor
R6T (A9P)		Brine leaving water
R10T		Heat sink thermistor
R1H (A3P)	*	Humidity sensor
S1L		Brine flow switch
S1PH		High pressure switch
S1S	#	Preferential kWh rate power supply contact
S2S	#	Electrical meter pulse input 1
S3S	#	Electrical meter pulse input 2
S6S~S9S	#	Digital power limitation inputs
SS1 (A4P)	*	Selector switch
TR1		Power supply transformer
V1R, V2R		Insulate gate bipolar transistor power module
X*H		Backup heater connector
X*M		Terminal strip
X*Y		Connector
Z1C~Z6C		Noise filter (ferrit core)
Z1F~Z5F		Noise filter
	* =	Optional
	# =	Field supply

Notes to go through before starting the unit

English	Translation
X1M	Main terminal
X2M	Field wiring terminal for AC
X5M	Field wiring terminal for DC
—·—·—·—	Earth wiring
– – – – – – –	Field supply
15	Wire number 15
—> **/12.2	Connection ** continues on page 12 column 2
①	Several wiring possibilities
	Option
	Not mounted in switch box
	Wiring depending on model
	PCB


(1) Main power connection
Only for normal power supply (standard)
Only for preferential kWh rate power supply
Use normal kWh rate power supply for hydro PCB
Switch box
(2) Outdoor ambient sensor
(3) Option external indoor ambient sensor
(4) User interface
User interface
Only for Remote user interface option
(7) Option PCBs
Options: boiler output, alarm output, On/OFF output
Only for digital I/O PCB option
Only for demand PCB option
(6) Field supplied options
Normally open
Normally closed
Shut-off valve
Electrical meters
(7) External room thermostats and heat pump convector
Main LWT zone
Additional LWT zone
Only for wired thermostat
Only for wireless thermostat
Only for heat pump convector
Only for external sensor (floor/ ambient)

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Electrical meter specification

- Pulse meter type / voltage free contact for 5 V DC detection by PCB
- Possible number of pulse:
  - 0.1 pulse/kWh
  - 1 pulse/kWh
  - 10 pulse/kWh
  - 100 pulse/kWh
  - 1000 pulse/kWh
- Pulse duration
  - minimum On time 40 ms
  - minimum OFF time 100 ms
- Measurement type (depending on installation):
  - single phase AC meter
  - three phase AC meter (balanced loads)
  - three phase AC meter (unbalanced loads)

Electrical meter installation guideline

- General: it is the responsability of the installer to cover the complete power consumption with electrical meters (combination of estimation and metering is not allowed)
- Required number of electrical meters:

Electrical meter type	Regular kWh rate power supply
1~	—
3~ balanced	1
3~ unbalanced	—

Electrical meter type	Benefit kWh rate power supply
1~	1
3~ balanced	1
3~ unbalanced	—

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Zandvoordestraat 300, B-8400 Oostende, Belgium

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